



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| | | | | |
|--|-------------|----------------------|--------------------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/517,761 | 06/21/2005 | Tomohiro Yamaguchi | 263040US0XPCT | 7975 |
| 22850 7590 05/16/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER BOYKIN, TERRESSA M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1711 | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 05/16/2007 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary

Application No.

10/517,761

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Terressa M. Boykin

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,9,10,13-19,21,24,26 and 29-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,9,10,13-19,21,24,26 and 29-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

Art Unit: 1711

***Note that the Examiner would be more than happy to speak with the applicants or applicants' representatives to discuss specific matters of concern in hopes to further expedite the prosecution of the case.**

Allowable Subject Matter

Claims 9,10,13-19,21,24,26, 29-34 are allowed.

Response to Arguments

Applicant's arguments filed 4-16-7 have been fully considered but they are not persuasive however, are moot in view of the new ground(s) of rejection and applicants further explanation of the invention.

Applicants' claim 1 remains so broadly set forth that the claim continues to be interpreted by the Examiner as anticipated by the references while remaining within the scope of the specification. It should be noted that in order to prosecute the case resourcefully and expediently while giving the applicants the best possible search, it is imperative and practical for the applicants to clarify how are arranged/incorporated/formed or structured therein.

Note that a process should recite all clear., active steps and any process parameters necessitated by the specification so that the claim will "clearly set out and circumscribe a particular area with a reasonable degree of precision and particularity, In re Moore, 169 USPQ 236, and make it clear what subject matter the claim encompasses, as well as make clear the subject matter from others would be precluded. In re Hammack 166 USPQ 204.

Without such clarity of the processes steps with regard to actual amounts, parameters etc., the art of record remains within the scope of the present claims and the applicant's arguments although understood and appreciated are moot on those basis.

*** It would be beneficial and helpful for the applicants in order to expedite the prosecution of the case to be in position of allowability by using language from the specification or drawn directly from the examples of the specification that would clearly and further specify the claimed language without, of course, unfairly limiting applicants intended invention.**

Art Unit: 1711

In view of applicants' comments and clarification of the intended subject matter, and *further searching* of this intended subject matter, the following claims have been rejected:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, are rejected under 35 U.S.C. 102 (b or e) as being anticipated by newly submitted USP 6815509. Note that the PCT does not necessarily contain the claims as now present and may or may not be used as the priority.

USP 6815509 discloses a process according to any one of the above-mentioned processes (2) through (4), wherein the reactor is a tank reactor having an L/D of from 1 to 8 and being equipped with a stirrer, wherein L represents a length between an upper tangent line and a lower tangent line of the reactor and D represents an inner diameter of the reactor.

The hydrogenation catalysts may be supplied to a hydrogenation reactor either separately from the polymer solution containing olefinic unsaturated groups or after being mixed with the polymer solution containing olefinic unsaturated groups or with a hydrogenated polymer solution to be recycled.

It is acceptable that the hydrogenation catalyst of the first supply is activated after being mixed with a conjugated diene polymer. The additional supply is preferably made after the hydrogenation activity is exhibited or in the state where the catalyst is immediately activated in the hydrogen atmosphere.

Art Unit: 1711

The hydrogenation reaction of the reference is carried out in the hydrogen atmosphere. Hydrogen is preferably supplied to the polymer solution containing olefinic unsaturated groups in the form of a gas, and it may contain inert gas such as nitrogen and argon within the range where the purpose of this invention is not impaired. Herein, the inert gas indicates a gas which does not react with a hydrogenation catalyst so that it does not cause deactivation of the catalyst.

Hydrogen is preferably supplied so as to disperse finely in a liquid phase in order to contact with the polymer containing olefinic unsaturated groups efficiently. To disperse hydrogen in the liquid phase efficiently finely, equipment like an atomizer can be used. Hydrogen is preferably supplied to a reactor from near its bottom. The unreacted hydrogen is preferably collected and recycled from the viewpoint of a production cost. For example, the unreacted hydrogen of the supplied hydrogen may be collected from the gas phase in the reactor with solvent vapor, separated from the solvent in the solvent collecting tank, and pressurized in a compressor to recycle. In addition, the hydrogen which is dissolved in the polymer solution may be separated and collected through a flash tank or the like, and pressurized in the compressor to recycle.

As a hydrogenation reactor, for example, tank, column and tube reactors and the like may be used, and is not particularly limited. When one reactor is used as a hydrogenation reactor, a tank reactor which has an L/D of from 1 to 8 and is equipped with a stirrer is preferably used. Herein, L represents a length between the upper tangent line and the lower tangent line of a reactor and D represents the inside diameter of the reactor. When plural reactors are connected to use, it is preferred that a tank reactor having an L/D of from 1 to 8 and equipped with a stirrer is used as a first reactor and a tank reactor having an L/D of from 1 to 8 and equipped with a stirrer, or a column or tube reactor having an L/D of from 2 or more, preferably 3 or more, and more preferably 5 or more is used as second and following reactors arranged downstream of the first reactor.

Although it is not necessary to employ a reactor equipped with a stirrer, the hydrogenation reaction is preferably conducted with stirring to promptly contact the supplied hydrogen with a polymer containing olefinic unsaturated groups, and a reactor equipped with a stirrer having high stirring ability is preferably used. Especially, at a time when a large amount of hydrogen is consumed, e.g., at the initial stage of a reaction in batch hydrogenation or at continuous hydrogenation having a high production speed, the hydrogenation is preferably performed while stirring from the viewpoint of uniformity of hydrogenation reactions, removal of reaction heat or prevention of regional and abnormal reactions. As a stirrer, any type such as a turbine type, a paddle type, a screw type, an anchor type, a full zone type or a static type may be used. Generally, in order to disperse a gas into a liquid phase finely, a disc turbine or paddle type stirrer is effective and most preferred. When a stirring speed cannot be increased, it is effective to install a ringed sparger right under a stirring blade. A stirring blade may be arranged vertically in a multiple stage. In addition, a flat perforated plate, a baffle plate or

Art Unit: 1711

the like may be installed in the reactor if necessary. When a tube reactor is used, a static type stirrer is preferred. A static mixer element may be installed in the piping.

From the polymer solution subjected to the hydrogenation reaction according to the process of the present invention, a catalyst residue may be removed to separate a hydrogenated polymer from solution if necessary. Examples of separation methods include a method comprising collecting a precipitated polymer obtained by adding a polar solvent, a poor solvent for a hydrogenated polymer such as acetone and alcohol, to a reaction liquid after hydrogenation; a method comprising collecting a hydrogenated polymer by putting a reaction liquid to hot water with stirring and removing a solvent therefrom by steam stripping, a method comprising removing a solvent by direct heating of a reaction liquid; and the like.

Claim 4, 5, and 10.

The reference discloses a method for hydrogenation of a polymer and within the process there exist a method for stripping solvent from a polymer solution prepared from the same components as claimed by applicants. In view of the above, there appears to be no significant difference between the reference and that which is claimed by applicant(s). Applicant's claims. Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.


** It is noted that although applicants may claim priority, it is not clear or readily apparent that the claims now as written would be able to rely on that the priority date.*

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terressa M. Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday-Thursday 10-5:30 Friday (work at home).

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Terressa M. Boykin
Primary Examiner
Art Unit 1711
